# Chapter 5
# Team Responsiveness and the Quality of Working Life

*In this chapter, I will present the analysis of the relationship between team responsiveness and quality of working life (QWL). I shall test the hypotheses as formulated in Chapter 3. First I will carry out the cross-sectional analyses to test the hypotheses for a direct effect on QWL. Secondly, the longitudinal models will be discussed. The chapter will end with an overview of the relationships found.*

## 5.1 Direct Effects on Quality of Working Life

The statistical cross-sectional framework presented in Chapter 3 is used for the analyses of the relationships between team responsiveness and QWL. This time, however, it is hypothesized that joint management has a positive direct relationship with QWL (hypothesis 1), and that job management also has a positive direct main effect on QWL (hypothesis 2). Another difference, compared to Chapter 4, is that almost all teams of all departments provided data for the QWL measures. This means data is also available on the difference between teams working in production as opposed to teams working in one of the supporting departments; I will therefore statistically control any possible effect that this difference could have on QWL. Working in one of the two different environments can have a stronger effect on QWL than team responsiveness can. For example, think about the difference in physical strain that operators in the assembly face compared to fork-lift drivers or the accountant in the financial department. In the hierarchical statistical model, I therefore first enter a so-called dummy variable to statistically control the effect of production work as opposed to work in one of the supporting departments; this will be called the *basic model*. Subsequently, joint management is entered to the model, followed by job management and boundary management, thus adhering to the models presented in table 8 and 9.

## 5.2 Behavioral Outcomes

As mentioned in 3.4.3 both the number of sick-occasions and long-term absenteeism are calculated over a one-year period. The end of this period is determined by the end of the survey period in each of the years 2001, 2002 and 2003. Due to this data structure, the cross-sectional analyses need a different set-up. This is because the absenteeism figure covers an entire year, and it seems logical to expect that team responsiveness at the beginning of that year has more effect on the total year's absenteeism than the team responsiveness at the end of that year. This means that the behavioral measure in year $x^t$ is expected to be explained by the team responsiveness in year $x^{t-1}$. In other words, responsiveness in 2001 is expected to affect sick-occasions and long-term absenteeism in 2002, while responsiveness in 2002 is expected to affect the behavioral outcomes in 2003. As a result, the analyses contain a longitudinal element. The following sub-sections present the analyses for the number of sick-occasions and the amount of long-term absenteeism.

### 5.2.1 Sick-occasions

Table 20 presents the outcomes of the responsiveness model for 2001 and 2002, which serve as inputs to the number of sick-occasions in 2002 and 2003.

**Table 20 Regression Analysis' Results for the Number of Sick-Occasions During 2002 and 2003**

| | Standardized coefficient Beta | | | |
|---|---|---|---|---|
| | **Basic model** | **model 4** | **model 5** | **model 6** |
| *Responsiveness 2001 (df=45)* | | | | |
| Departments (1=production) | .774*** | .773*** | .904*** | .517*** |
| Joint management | | .046 | .087 | .095 |
| Job management | | | -.270* | -.130 |
| Boundary management | | | | -.438** |
| $R^2$ | .599 | .601 | .655 | .731 |
| $R^2$ change | .599*** | .002 | .054* | .075** |
| *Responsiveness 2002 (df=55)* | | | | |
| Departments (1=production) | .817*** | .817*** | .879*** | .577*** |
| Joint management | | -.011 | .054 | .058 |
| Job management | | | -.253** | -.109 |
| Boundary management | | | | -.395*** |

| | Standardized coefficient Beta | | | |
|---|---|---|---|---|
| | **Basic model** | **model 4** | **model 5** | **model 6** |
| $R^2$ | .668 | .668 | .724 | .789 |
| $R^2$ change | .668*** | .000 | .056** | .065*** |

*p<.05, **p<.01, ***p<.001, Basic model = difference between production and support teams, df = degrees of freedom

First of all, the basic model shows a clear effect related to the distinction between production and supporting personnel. Sixty percent of the variance of the number of sick occasions depends on this distinction (see the $R^2$ of the basic model of responsiveness 2001 with a value of .599). The β shows that the average number of sick-occasions is about half a standard deviation of sick-occasions more for production personnel than for support personnel. The overall model explains a large proportion of the variance of the number of sick occasions, between 73% and 79%.

Another 12-13% of the variance of sick-occasions is explained by the level of responsiveness. Joint management does not show any effect, as expected (sub-hypothesis 1d). On the other hand, job management does; although this effect is eliminated after entering boundary management, thereby rejecting sub-hypothesis 2a. More noteworthy is the strong effect of boundary management on this behavioral measure, which is considerably larger than the effect of job management. Boundary management appears to have a negative effect on the number of sick occasions, meaning that higher levels of boundary management in 2001 and 2002 result in a lower number of sick occasions during the following year. Job management also shows a negative effect; this effect, however, is much smaller and does not contribute significantly to the overall model, and as a result sub-hypothesis 2a needs to be rejected.

The relatively high and unexpected effect of boundary management on the number of sick occasions, could be explained as customer-supplier relationships making people more committed to be at work and less easily inclined to stay home in case of illness. Boundary management also means improving the way of working, resulting in a healthier work place. Apparently, multi-functionality, decision making and control, as well as other aspects of job management play only a minor role in this matter.

### 5.2.2 Long-Term Absenteeism

A comparison of the cross-sectional analyses of long-term absenteeism (see table 21 below) shows evidence of a minor difference between production and support teams (basic model); the percentage of variance it explains, is, however, clearly smaller than the model of the number of sick occasions explained. This could indicate that long-term absenteeism is much less dependent on working in

production or supporting departments than short-term absenteeism (number of sick occasions) is. Long-term sick-leave in 2002 is even better explained by team responsiveness (compare significant $R^2$). Both 2002 and 2003 show that the percentage of people with long-term sick leave is slightly larger in a production environment.

**Table 21 Regression Analysis' Results for Long-Term Absenteeism During 2002 and 2003**

| | Standardized coefficient Beta | | | |
|---|---|---|---|---|
| | **Basic model** | **model 4** | **model 5** | **model 6** |
| *Responsiveness 2001 (df=45)* | | | | |
| Departments (1=production) | .216 | .222 | .357* | .344 |
| Joint management | | -.311* | -.269¹ | -.269¹ |
| Job management | | | -.279¹ | -.274 |
| Boundary management | | | | -.014 |
| $R^2$ | .047 | .143 | .201 | .201 |
| $R^2$ change | .047 | .097* | .057¹ | .000 |
| *Responsiveness 2002 (df=55)* | | | | |
| Departments (1=production) | .249 | .245¹ | .257¹ | .198¹ |
| Joint management | | -.164 | -.151 | -.150 |
| Job management | | | -.050 | -.022 |
| Boundary management | | | | -.077 |
| $R^2$ | .062 | .089 | .091 | .093 |
| $R^2$ change | .062¹ | .027 | .002 | .002 |

*p<.05, **p<.01, ***p<.001, ¹(p<.1)

The direct effects of team responsiveness on long-term absenteeism differ for the two years of analysis. The level of joint and job management only show minor yet statistically significant negative effects for 2002 (p<.1), meaning that higher levels of job and joint management result in lower percentages of long-term sick leave. The effects appear to be small and not very durable over the years. Sub-hypothesis 1e, regarding a positive relationship (reducing effect) between joint management and long-term absenteeism, is supported only by the data for 2002; as is sub-hypothesis 2b, regarding a positive main effect of job management on long-term absenteeism. Boundary management does not show any significant relationship with this type of absenteeism.

Feedback, motivation and assessment, as well as conflict management can all be regarded as aspects of joint management that have a lowering effect on the percentage of long-term absenteeism in teams. Absenteeism, especially long-term,

is a complicated issue that is a combination of physical and mental problems. Joint management can function preventively, reducing conflicts and bad internal relationships that otherwise could cause long-term absenteeism in a later stage. As such, good internal relationships within the team motivate people to go back to work again, whereas otherwise they would be afraid to face internal conflicts in the team and stay home longer and longer. The impact of job management is most likely more related to the physical issues of long-term absenteeism. Job enlargement and job enrichment have long been connected to improved working conditions and quality of working life (Hackman & Oldham 1980).

## 5.3 Attitudinal Outcomes

In this section, I consider the effect of team responsiveness on attitudinal outcomes. Again, I will statistically control the difference between teams in production and supporting departments (basic model). A total of nine cross-sectional models will be used to test the sub-hypotheses (1fgh and 2cde) regarding satisfaction, involvement and burnout.

### 5.3.1 Satisfaction

Satisfaction is measured on individual level, but aggregated to team level in order to relate it to team responsiveness. The results of the three direct-effect models (all cross-sectional) are shown in table 22 below.

**Table 22 Cross-sectional Regression Analysis' Results for Satisfaction**

| | **Standardized coefficient Beta** | | | |
|---|---|---|---|---|
| | **Basic model** | **model 1** | **model 2** | **model 3** |
| *2001 (df=149)* | | | | |
| Departments (1=production) | -.622*** | -.621*** | -.735*** | -.451*** |
| Joint management | | .126* | .154** | .186*** |
| Job management | | | .379*** | .294*** |
| Boundary management | | | | .421*** |
| $R^2$ | .386 | .402 | .532 | .635 |
| $R^2$ change | .386*** | .016* | .130*** | .103*** |
| *2002 (df=162)* | | | | |
| Departments (1=production) | -.556*** | -.556*** | -.636*** | -.277*** |
| Joint management | | .247*** | .226*** | .220*** |
| Job management | | | .345*** | .216*** |
| Boundary management | | | | .527*** |

| | Standardized coefficient Beta | | | |
|---|---|---|---|---|
| | **Basic model** | **model 1** | **model 2** | **model 3** |
| $R^2$ | .309 | .370 | .482 | .636 |
| $R^2$ change | .309*** | .061*** | .112*** | .153*** |
| *2003 (df=162)* | | | | |
| Departments (1=production) | -.611*** | -.615*** | -.676*** | -.368*** |
| Joint management | | .185** | .175** | .219*** |
| Job management | | | .266*** | .181*** |
| Boundary management | | | | .460*** |
| $R^2$ | .374 | .408 | .475 | .594 |
| $R^2$ change | .374*** | .034** | .067*** | .119*** |

*p<.05, **p<.01, ***p<.001

The difference between production and support teams explains between 30% and 40% of the variance of satisfaction (basic model). Satisfaction appears to be lower for production teams: a quarter to almost half a standard deviation lower than for the teams in the supporting departments.

The responsiveness dimensions, in turn, explain 22-33% of the rest of the variance of satisfaction. A small proportion of that is explained by joint management, which has a significant positive effect. Good internal relations within the team form the basis for the team's satisfaction, and therefore these data support sub-hypothesis 1f. Job management shows to affect satisfaction significantly and positively as well during each of the years (confirming sub-hypothesis 2c). Their effects are substantially larger than that of joint management, but boundary management clearly has the strongest effect (compare the β-values). Apparently, maintaining customer and supplier relations and working with continuous improvements are more satisfying than being multifunctional and having good internal relations in the team.

### 5.3.2 Involvement

Like satisfaction, involvement is aggregated to team level. Table 23 shows the outcomes of the cross-sectional analyses concerning the direct effects of team responsiveness on involvement.

**Table 23 Cross-Sectional Regression Analysis' Results for Involvement**

| | Standardized coefficient Beta | | | |
|---|---|---|---|---|
| | **Basic model** | **model 1** | **model 2** | **model 3** |
| *2001 (df=149)* | | | | |
| Departments (1=production) | -.393*** | -.392*** | -.551*** | -.354*** |
| Joint management | | .155* | .194** | .216*** |
| Job management | | | .530*** | .471*** |
| Boundary management | | | | .292*** |
| $R^2$ | .155 | .179 | .433 | .482 |
| $R^2$ change | .155*** | .024* | .254*** | .050*** |
| *2002 (df=162)* | | | | |
| Departments (1=production) | -.424*** | -.425*** | -.525*** | -.197** |
| Joint management | | .222** | .196** | .190** |
| Job management | | | .433*** | .316*** |
| Boundary management | | | | .481*** |
| $R^2$ | .180 | .229 | .406 | .534 |
| $R^2$ change | .180*** | .049** | .177*** | .128*** |
| *2003 (162)* | | | | |
| Departments (1=production) | -.474*** | -.476*** | -.565*** | -.284*** |
| Joint management | | .111 | .097 | .136** |
| Job management | | | .386*** | .308*** |
| Boundary management | | | | .419*** |
| $R^2$ | .224 | .237 | .378 | .476 |
| $R^2$ change | .224*** | .012 | .141*** | .099*** |

*p<.05, **p<.01, ***p<.001

Again, there is a significant difference between production and support teams in relation to QWL (basic model). Production teams score significantly lower on involvement. Team responsiveness explains 25-35% extra variance.

Similar to satisfaction, joint management appears to have a small but statistically significant positive effect, which is in support of sub-hypothesis 1g. The levels of job management and boundary management explain the largest proportion of variance of involvement, and have positive effects. However, boundary management reports the strongest effects in 2002 and 2003 (compare the β values). The hypothesis that job management has a main effect on involvement (sub-hypothesis 2d) is also supported. The conclusion, as it was for satisfaction, is

that higher levels for each of the responsiveness dimensions lead to higher values of involvement. Maintaining customer and supplier relationships, initiating improvement activities, and using responsibility for advanced management and support tasks get teams involved the most.

### 5.3.3 Burnout

The individual data on burnout are aggregated to a team average for burnout. The results of the three cross-sectional analyses, or direct effects of team responsiveness on burnout, are shown in table 24.

**Table 24 Cross-Sectional Regression Analysis' Results for Burnout**

| | Standardized coefficient Beta | | | |
|---|---|---|---|---|
| | **Basic model** | **model 1** | **model 2** | **model 3** |
| *2001 (df=149)* | | | | |
| Departments (1=production) | .467*** | .467*** | .557*** | .382*** |
| Joint management | | .027 | .005 | -.015 |
| Job management | | | -.297*** | -.245*** |
| Boundary management | | | | -.259** |
| $R^2$ | .218 | .219 | .299 | .338 |
| $R^2$ change | .218*** | .001 | .080*** | .039** |
| *2002 (df=162)* | | | | |
| Departments (1=production) | .426*** | .426*** | .498*** | .365*** |
| Joint management | | .048 | .066 | .069 |
| Job management | | | -.308*** | -.260*** |
| Boundary management | | | | -.195** |
| $R^2$ | .182 | .184 | .273 | .294 |
| $R^2$ change | .182*** | .002 | .089*** | .021** |
| *2003 (df=162)* | | | | |
| Departments (1=production) | .399*** | .399*** | .437*** | .363*** |
| Joint management | | -.014 | -.008 | -.019 |
| Job management | | | -.164* | -.143[1] |
| Boundary management | | | | -.110 |
| $R^2$ | .159 | .159 | .185 | .191 |
| $R^2$ change | .159*** | .000 | .025* | .007 |

*p<.05, **p<.01, ***p<.001, ([1]p<.1)

As for the other measures of QWL, the difference between teams in the production and supporting departments shows itself in higher burnout figures for the first group (basic model). Burnout, in short, appears to be higher for teams with production tasks. The extra variance explained by team responsiveness is limited. In 2003 this is the smallest with only 2.6% in total.

Joint management shows no significant effect on burnout, and therefore sub-hypothesis 1h is not supported by the data. Job management does have a considerable effect on burnout, thereby supporting sub-hypothesis 2e; it shows significant negative effects during all three years of measurement, meaning that higher levels of job management result in lower levels of burnout. Boundary management only shows such an effect in 2001 and 2002. Job rotation, work communication and self-performed decision making and control, show to be good predictors for burnout in teams. Being able to change tasks once in a while, having good communication about the work, and making decisions by yourself (instead of being told what to do) obviously reduce the perceived tiredness and demotivation in the team's work. The aspects of boundary management also have a reducing effect on burnout. The fact that a team has direct contact with customers and suppliers might be more motivating, and the possibility to improve ones own work can also support the team in avoiding tiredness and demotivation.

## 5.4 Longitudinal Effects on Quality of Working Life

In this section, I will discuss the results of the longitudinal effects of team responsiveness on QWL (Hypotheses 4, 5 and 7). According to hypothesis 7, the longitudinal models for QWL will not be improved in explanatory power by adding cross-sectional effects. To test the models I will use the set-up introduced earlier in tables 8 and 9. Section 5.4.1 deals with the longitudinal relationship between team responsiveness and the behavioral outcomes, whereas in 5.4.2 the longitudinal relationship with attitudinal outcomes is discussed.

### 5.4.1 Longitudinal Effects on Behavioral Outcomes

The earlier cross-sectional models for sick-occasions and long-term absenteeism already contained a longitudinal element due to the data structure. This is the same for the longitudinal model used for testing hypotheses 4de, 5ab and 7de, and therefore responsiveness in 2001 and 2002 serve as inputs to the number of sick-occasions and long-term absenteeism in 2003. Adding responsiveness of 2003 to the model would be meaningless, since we cannot expect sick-leave in the entire preceding year to be affected by the responsiveness rate that is measured when this year is over. Table 25 shows the results for sick occasions in 2003.

**Table 25 Longitudinal Regression Analysis' Results for the Number of Sick-Occasions in 2003**

| | Standardized coefficient Beta | | | | | |
|---|---|---|---|---|---|---|
| | **Basic model** | **Model 7** | **Model 8** | **Model 9** | **Model 4** | **Model 5** |
| *2001 (df=42)* | | | | | | |
| Departments (1=production) | .817*** | .819*** | .951*** | .603*** | .636*** | .619*** |
| Joint management | | -.105 | -.064 | -.057 | -.091 | -.088 |
| Job management | | | -.271** | -.145 | -.173¹ | -.097 |
| Boundary management | | | | -.394** | -.370** | -.370** |
| *2002* | | | | | | |
| Joint management | | | | | .072 | .070 |
| Job management | | | | | | -.084 |
| Boundary management | | | | | | excl. |
| $R^2$ | .668 | .679 | .733 | .794 | .798 | .800 |
| $R^2$ change | .668*** | .011 | .054** | .061** | .003 | .002 |

*p<.05, **p<.01, ***p<.001, (¹p<.1), excl. = excluded to avoid collinearity in the last model

The model shows that team responsiveness in 2002 does not explain extra variance compared to the long-term effects of responsiveness 2001, thereby supporting sub-hypothesis 7d. Besides the difference between production teams and support teams, the outcomes of the analysis again show the significant negative impact of boundary management on the number of sick-occasions. Job management also shows a contribution to the model, but without significant β value and therefore the data do not support sub-hypothesis 5a. So boundary management reports the strongest effect on the number of sick-occasions. Also evident from this longitudinal model, joint management does not report a significant positive relationship and therefore sub-hypothesis 4d needs to be rejected as well.

Table 26 shows the model for the longitudinal relationship between team responsiveness and long-term absenteeism. Like the cross-sectional model, responsiveness appears to explain more of the variance of long-term absenteeism than the difference between production and supporting departments does, as is the case for most of the other QWL measures. In 2002 responsiveness does not explain extra variance either; compared to the effects of responsiveness in 2001, sub-hypothesis 7e is therefore confirmed by the data. Again, joint management proves to be the most important and only condition for long-term absenteeism in teams. Sub-hypothesis 4e is therefore also supported, whereas the sub-hypothesis that job management has a main effect on longitudinal absenteeism can be rejected. Neither job nor boundary management reports a positive significant effect.

**Table 26 Longitudinal Regression Analysis' Results for Long-Term Absenteeism in 2003**

| | Standardized coefficient Beta | | | | | |
|---|---|---|---|---|---|---|
| | **Basic model** | **Model 7** | **Model 8** | **Model 9** | **Model 4** | **Model 5** |
| *2001 (df=42)* | | | | | | |
| Departments (1=production) | .249 | .256¹ | .295¹ | .311 | .345 | .366 |
| Joint management | | -.380** | -.368* | -.368* | -.403* | -.408* |
| Job management | | | -.081 | -.086 | -.115 | -.206 |
| Boundary management | | | | .017 | .042 | .043 |
| *2002* | | | | | | |
| Joint management | | | | | .075 | .077 |
| Job management | | | | | | .101 |
| Boundary management | | | | | | excl. |
| $R^2$ | .062 | .206 | .211 | .211 | .215 | .218 |
| $R^2$ change | .062 | .144** | .005 | .000 | .004 | .003 |

*p<.05, **p<.01, ***p<.001, (¹p<.1), excl. = excluded to avoid collinearity in the last model

The outcomes of the longitudinal analyses do not provide new insights concerning the relationship between the team responsiveness dimensions and the behavioral outcomes. The outcomes from both types of analyses are very consistent. Boundary management has the strongest effect on the number of sick occasions, followed by a minor effect of job management. Joint management shows significant negative effects on long-term absenteeism. Moreover, the long-term effects of team responsiveness seem to be better predictors for the behavioral outcomes.

### 5.4.2 Longitudinal Effects on Attitudinal Outcomes

For satisfaction, involvement and burnout I tested three longitudinal models. In these models, the team responsiveness dimensions are entered according to the hypotheses (1fgh, 2cde and 7fgh) and related to these attitudinal outcomes in 2003.

**Table 27 Longitudinal Regression Analysis' Results for Satisfaction in 2003**

| | Standardized coefficient Beta | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Basic model** | **Model 7** | **Model 8** | **Model 9** | **Model 4** | **Model 5** | **Model 1** | **Model 2** |
| *2001 (df=123)* | | | | | | | | |
| Departments (1=production) | -.611*** | -.611*** | -.674*** | -.384*** | -.379*** | -.395*** | -.388*** | -.397*** |
| Joint mgt. | | .050 | .065 | .098 | .040 | -.003 | -.029 | -.039 |
| Job mgt. | | | .210** | .122¹ | .100 | -.111 | -.179* | -.192* |
| Boundary mgt. | | | | .430*** | .428*** | .412*** | .440*** | .432*** |
| *2002* | | | | | | | | |
| Joint mgt. | | | | | .102 | .141¹ | -.060 | -.053 |
| Job mgt. | | | | | | .299*** | .399*** | .367*** |
| Boundary mgt. | | | | | | excl. | excl. | excl. |
| *2003* | | | | | | | | |
| Joint mgt. | | | | | | | .333*** | .326*** |
| Job mgt. | | | | | | | | .066 |
| Boundary mgt. | | | | | | | | excl. |
| $R^2$ | .374 | .376 | .416 | .523 | .530 | .575 | .631 | .633 |
| $R^2$ change | .374*** | .002 | .040** | .107*** | .007 | .045*** | .056*** | .002 |

*p<.05, **p<.01, ***p<.001, (¹p<.1), excl. = excluded to avoid collinearity in the last models

Table 27 shows that each of the years contribute to the model, since each section of the model explains part of the total variance of the teams' satisfaction. The overall longitudinal model for satisfaction 2003 explains 63.3% of the variance, of which 26% is on account of the three dimensions and the rest is explained by the difference between production and supporting teams. The longitudinal effects of responsiveness in 2001 and 2002 explain most of the variance, whereas the cross-sectional effects of 2003 add only a smaller (although still significant) percentage of the explanatory power to the overall model. As a result, sub-hypothesis 7f is supported by the data.

Boundary management 2001 clearly reports a significant positive effect on satisfaction in 2003. This indicates an evident longitudinal effect. Job management has a somewhat ambivalent longitudinal relationship with satisfaction. The effect of job management 2001 is slightly negative at first, but in 2002 it has a much stronger positive impact. In total, the effect of job management through time can be considered as positive and sub-hypothesis 5c as supported. Finally, joint management appears to affect satisfaction only on the short term, as can be seen by the significant positive impact of this dimension for 2003. Since there is no longitudinal relationship between joint management and satisfaction, sub-hypothesis 4f is not supported.

The results show that both boundary and job management have sustainable effects over time. Earlier developments on these dimensions positively affect satisfaction at later points in time. The effect of joint management, however, is direct, which shows that the internal relationships of the team have almost a volatile effect on satisfaction compared to the other two dimensions. Apparently, bad joint management in the past does not spoil the team's mood today if it has good internal relationships now. Vice versa the team also does not seem to be more satisfied with the knowledge that joint management was better in the past; previous levels of joint management simply have no effect on today's satisfaction.

**Table 28 Longitudinal Regression Analysis' Results for Involvement in 2003**

| | Standardized coefficient Beta | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Basic model** | **Model 7** | **Model 8** | **Model 9** | **Model 4** | **Model 5** | **Model 1** | **Model 2** |
| *2001 (df=123)* | | | | | | | | |
| Departments (1=production) | -.474*** | -.474*** | -.552*** | -.322** | -.319** | -.342*** | -.336*** | -.361*** |
| Joint mgt. | | .013 | .032 | .058 | .025 | -.037 | -.059 | -.087 |
| Job mgt. | | | .261** | .192* | .179* | -.131 | -.186¹ | -.224* |
| Boundary mgt. | | | | .342*** | .341*** | .318*** | .341*** | .317*** |
| *2002* | | | | | | | | |
| Joint mgt. | | | | | .058 | .116 | -.050 | -.030 |
| Job mgt. | | | | | | .439*** | .521*** | .431*** |
| Boundary mgt. | | | | | | excl. | excl. | excl. |
| *2003* | | | | | | | | |
| Joint mgt. | | | | | | | .274** | .254** |
| Job mgt. | | | | | | | | .186* |
| Boundary mgt. | | | | | | | | excl. |
| $R^2$ | .224 | .225 | .286 | .354 | .356 | .453 | .491 | .510 |
| $R^2$ change | .224*** | .000 | .062** | .068*** | .002 | .097*** | .038** | .019* |

*p<.05, **p<.01, ***p<.001, (¹p<.1), excl. = excluded to avoid collinearity in the last models

The total longitudinal model for involvement in 2003 (table 28) explains 51% of the variance, of which more than half is on the account of the three team responsiveness dimensions. Again, the largest part of the variance of involvement 2003 is explained by team responsiveness in the past (supporting sub-hypothesis 7g).

The longitudinal model shows many similarities with the previously discussed model for satisfaction. Here too, boundary management 2001 clearly shows a significant positive and sustainable effect through time. Job management in 2001 first reports a slightly negative effect on involvement in 2001, while the effect in 2002 appears to be a much stronger positive one. Additionally, job management shows a direct positive effect in 2003. Sub-hypothesis 5d thus seems to be

confirmed by the data. Like with satisfaction, finally, joint management only shows a significant positive direct effect in 2003 and not a longitudinal effect, and that is why sub-hypothesis 4g also cannot be supported.

I believe that the interpretation concerning the effects of team responsiveness on the involvement of Volvo employees is comparable to that of satisfaction. Job and boundary management show sustainable effects over time, whereas the current state of joint management only seems to affect the involvement at this moment.

**Table 29 Longitudinal Regression Analysis' Results for Burnout in 2003**

| | Standardized coefficient Beta | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Basic model** | **Model 7** | **Model 8** | **Model 9** | **Model 4** | **Model 5** | **Model 1** | **Model 2** |
| *2001 (df=123)* | | | | | | | | |
| Departments (1=production) | .399*** | .399*** | .414*** | .246** | .244** | .255** | .253** | .269** |
| Joint mgt. | | .029 | .025 | .006 | .027 | .055 | .063 | .081 |
| Job mgt. | | | -.050 | .000 | .008 | .153 | .173 | .197 |
| Boundary mgt. | | | | -.250* | -.249* | -.238* | -.247* | -.232* |
| *2002* | | | | | | | | |
| Joint mgt. | | | | | -.036 | -.063 | -.004 | -.016 |
| Job mgt. | | | | | | -.204¹ | -.234¹ | -.176 |
| Boundary mgt. | | | | | | excl. | excl. | excl. |
| *2003* | | | | | | | | |
| Joint mgt. | | | | | | | -.098 | -.086 |
| Job mgt. | | | | | | | | -.119 |
| Boundary mgt. | | | | | | | | excl. |
| $R^2$ | .159 | .160 | .162 | .198 | .199 | .220 | .225 | .233 |
| $R^2$ change | .159*** | .001 | .002 | .036** | .001 | .021¹ | .005 | .008 |

*p<.05, **p<.01, ***p<.001, (¹p<.1), excl. = excluded to avoid collinearity in the last models

The effects in the longitudinal model for burnout in 2003 (table 29) are not improved by adding cross-sectional effects of that year, which supports sub-hypothesis 7h. Also, after entering team responsiveness 2001 into the model, the sections for 2002 and 2003 hardly contribute extra explanatory power to the overall model. Notable is the fact that boundary management has a small yet statistically significant negative longitudinal effect on the value of burnout in 2003, while the effect of job management in 2002 is only significant with a p-value of .1. The difference in working environment, depending on teams working in production or for support, is clearly the most relevant condition for the teams' burnout.

The durable negative effect of job management, reported by all three cross-sectional models 5.3.3 cannot be found with this longitudinal model. In addition, joint management has no longitudinal effect on burnout and therefore sub-

hypothesis 4h needs to be rejected. Instead, boundary management should be considered as having the strongest effect on burnout.

## 5.5 Summary and Conclusions on Quality of Working Life

Quality of Working Life in this study consists of two measures for behavioral outcomes and three measures for attitudinal outcomes. For each of those measures I calculated the effect of team responsiveness with a model that was built on the earlier defined hypotheses (1, 2, 4, 5 and 7). Joint management was expected to have a positive direct and longitudinal relationship with all QWL measures, whereas job management was expected to have a positive main effect, both in the cross-sectional and longitudinal models. The models in the first sections of this chapter included the test of a direct effect by a series of cross sectional analyses for each of the years. The longitudinal relationships between team responsiveness and QWL measures were tested in section 5.4. Each model was tested according to the structure that was earlier introduced in tables 8 and 9.

All responsiveness dimensions appeared to be of importance to QWL. An important main effect was found for the difference between teams in production and supporting departments, in favor of the latter group. Up to 35% of the variance of QWL was explained by the three team responsiveness dimensions. The β-values of these relationships predominantly showed positive effects on all behavioral and attitudinal outcomes, as shown in table 30. Both cross-sectional and longitudinal models showed significant positive effects of team responsiveness on behavioral and attitudinal outcomes.

From both types of QWL measures, team responsiveness explained most of the variance of the attitudinal measures. This might suggest a so-called single-method bias. A single-method bias refers to the fact that theoretically different variables are measured with the exact same method; the same questionnaire in this case. It is known that such variables often - in this case team responsiveness and attitudinal outcomes - correlate higher than variables measured with different methods (like responsiveness and objectively measured sick-leave). However, the longitudinal relationships between team responsiveness and attitudinal behaviors also explain a high proportion of variance. Since the longitudinal effects of responsiveness were measured by a questionnaire in the years previous to the attitudinal outcomes in 2003, this is not likely to be a case of single-method bias.

**Table 30 Overview of Direct and Longitudinal Effects on Behavioral and Attitudinal Outcomes**

| | Sick occasions | Long-term absenteeism | Satisfaction | Involvement | Burnout |
|---|---|---|---|---|---|
| *Joint management* | | + (L)* | + | + | |
| *Job management* | | | + (L) | + (L) | +* |
| *Boundary management* | + (L)* | | + (L) | + (L) | + (L)* |

* A positive effect means that higher team responsiveness leads to lower figures for sick-occasions, long-term sick leave and burnout; L = also a longitudinal relationship

An overview of all sub-hypotheses, and whether they are supported by the data or not, is provided in table 31. First I need to note that the effects of the basic model is not included in this table. The basic model was used to control for the effect of a difference between teams in production and supporting departments. In all models for QWL measures, except for the ones for long-term absenteeism, this difference appeared to have a significant effect. Generally, QWL can be considered significantly lower for teams working in the production. This is not that surprisingly, however, for a number of reasons. First of all, “production work” usually has a much lower status than jobs in supporting departments, often performed by white-collar workers (like in the financial or engineering department) or by highly skilled or well-educated workers (such as in the maintenance department). This status difference might affect the morale or attitudinal outcomes of teamwork due to a difference in perceptions. A more important role can be expected from the difference in physical and mental demands as a result of the work. The production work can be physically heavy compared to most of the work in supporting departments. Also, more routine and less freedom to divide your own working order and pace in the production can have negative effects on QWL.

The hypothesis that joint management has a positive relationship with the QWL measures (sub-hypotheses 1defgh) can be confirmed for a majority of the sub-hypotheses. However, the related hypotheses for joint management’s longitudinal effects (sub-hypotheses 4defgh) on QWL are not supported by the data. Nevertheless, joint management is the single most important predictor for long-term absenteeism in both the cross-sectional and longitudinal model, and has important positive direct effects on satisfaction and involvement in teams.

The hypothesis that job management has a cross-sectional main effect on QWL measures (2) can be confirmed by a majority of the sub-hypotheses. The same hypothesis for its longitudinal effects (5), however, is not supported by the data. As a matter of fact, it seems that boundary management is the single most important predictor for QWL measures due to its strong positive cross-sectional and

longitudinal effects on all behavioral and attitudinal outcomes (except for long-term absenteeism).

The importance of boundary management for QWL contradicts the original hypotheses (2 and 5) that job management, as an indication of the implementation of work characteristics (see 3.2 and 3.3.1), has a positive main effect on QWL. Instead of traditional STS concepts of job enlargement and job enrichment (forming the key-aspects of job management), it are aspects of boundary management such as customer contacts, improvement activities and advanced activities that seem to have the strongest impact on sick-leave and employee morale. This is surprising, since especially customer and supplier relations and continuous improvement activities are often considered as LP attainments.

**Table 31 Overview of the 25 Sub-Hypotheses Regarding QWL**

| QWL measure | Joint Management | | Job Management | | Longitudinal relationship |
|---|---|---|---|---|---|
| | Cross. | Long. | Cross. | Long. | |
| Sick occasions | 1d | 4d | 2a | 5a | 7d* |
| Long-term absenteeism | 1e* | 4e* | 2b | 5b | 7e* |
| Satisfaction | 1f* | 4f | 2c* | 5c* | 7f* |
| Involvoment | 1g* | 4g | 2d* | 5d* | 7g* |
| Burnout | 1h | 4h | 2e* | 5e | 7h* |
| *Total (QWL)* | Hypothesis 1* | Hypothesis 4 | Hypothesis 2* | Hypothesis 5 | Hypothesis 7* |

* Hypothesis which found support

For all QWL measures it was possible to carry out longitudinal analyses. As a matter of fact, the cross-sectional models on sick occasions and long-term absenteeism already contained longitudinal elements. All longitudinal models explained a high percentage of variance. In most cases the cross-sectional effects did not improve these models, or they added only a small percentage of variance. This confirms my hypothesis 7, which indicated that longitudinal models are very important in predicting QWL.

These longitudinal models for QWL, however, show a few remarkable outcomes. In several cases it appears that each responsiveness dimension has a different effect at different points in time. Boundary management, for instance, clearly shows a long-term effect: boundary management in 2001 brings down burnout and the number of sick-occasions, and positively affects satisfaction and involvoment on the long run. Joint management, on the other hand, appears to have a longitudinal effect on long-term absenteeism and direct effects on satisfaction and involvoment in teams. The effects of job management are somewhat harder to interpret. It

appears that levels of job management in 2001 have a small negative effect on later team satisfaction and involvement in 2003; the years 2002 and 2003, however, affect them positively, thus compensating the negative effects of job management in 2001.

Summarizing, team responsiveness indeed reports significant positive effects on behavioral and attitudinal outcomes, with the longitudinal models as good predictors for QWL. I conclude, as for the BP measures, that the results of team responsiveness for QWL are more subtle. Each team responsiveness dimension has certain specific effects on behavioral and attitudinal outcomes. Overall, joint, job and boundary management show positive and often strong effects on the five measures for QWL. However, boundary management can clearly be considered as the most important direct and long-term predictor for behavioral and attitudinal outcomes in teams.